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The Wave-Length of the Green Coronium Line

In the August number of these Publications, pages 231-232, a brief statement is given of the methods and result of the attempt made by the Lick Observatory Expedition, on June 8, 1918, to photograph the region of the green coronal line, in order to determine the accurate wave-length of this line. The spectrogram secured with 3-prism dispersion (scale 28A to 1 mm.) recorded the green line very strongly for the corona west of the Sun, but, due to a defect in the driving mechanism, the image of the line corresponding to the corona east of the Sun is very faint.

Our measures of the position of the green line west of the Sun, with reference to nine lines of the comparison spectrum of the iron spark, in the same region, give the following values of its wave-length, after applying the correction −0.008A for the annual and diurnal motion of the Earth:

	Campbell	Moore	Moore	Mean
International Units..........	5302.80	02.83	02.87	5302.83
Correction for Solar Rotation..	−0.035			
International Units..........	5302.77	02.79	02.83	**5302.80**
Reduction to Rowland.......	+0.18			
Rowland Units..............	5302.95	02.97	03.01	**5302.98**

After Adams, St. John and Miss Ware published[1] their position of the green line, 5303.20A (Rowland), Mr. Moore made his second measure as above, using a high magnification in the measuring microscope, and Mr. Campbell again examined the plate with a high power. By assuming that certain structures in the image of the green line were unsymmetrical defects, Mr. Campbell was able to obtain a position of the line as far to the red as 5303.03A. He preferred to let his original measure stand, as the assumption of structural defects in the line does not seem justified. The cause of the discrepancy of 0.2A between the results of the Mount Wilson and Lick observers is not clear but may be due, at least in part, to the fact that the line, which our spectrogram shows is not monochromatic, may be of a complex structure. Under these conditions the faint image on the Mt. Wilson plate and the very strong one on our spectrogram might easily yield different values for the position of the line.

Campbell and Moore each measured the position of the faint trace of the bright line east of the Sun, with the identical result, corrected for solar rotation and for the Earth's annual and diurnal motions:

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[1] *Publ. A. S. P.*, **30**, 251, 1918.

International Units	5302.79
Rowland Units	5302.97

This result, while in good agreement with that for the green line west of the Sun, is of comparatively small weight and should not be used.

W. W. Campbell,
J. H. Moore.

Bright-Line Spectrum of the Corona

The general spectrum of the corona in the region 3600-5300A, shown on the spectrogram obtained with one-prism dispersion by the Lick Observatory Expedition on June 8, 1918, has been described in an earlier number of the Publications.[1] In the present note we have collected the results of our study of the bright-line spectrum of the corona based upon this spectrogram. These are described in the first three columns of the accompanying table, which give respectively, the observed wave-length from the mean of the measures by Campbell and Moore, the relative intensities of the lines, and the length of the lines in minutes of arc. A number of prominence or chromospheric lines are recorded on the photograph, twenty-one of the hydrogen series alone ($H\beta$ to H_χ) being measurable. These lines served as convenient reference points in determining the wave-lengths of the coronal lines. The relative intensities in the second column are subject to some uncertainty since those lines which lie upon a strong background of continuous spectrum would undoubtedly seem very much less intense if they were free from the background.

In the fourth column of the table are given the probable wave-lengths of the bright lines recorded on spectrograms of the corona by different observers, beginning with the eclipse of 1893. Those which appear to be undoubtedly coronal in origin are printed in bold type. A few lines observed on only one occasion by one observer, in some cases described as doubtful by the observers themselves, have been omitted, but some lines of this character have been left in the list, as they appear to be represented by Nicholson's formulae[2] for electronic radiations of "protofluorine" and "coro-

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[1] *Publ. A. S. P.*, **30**, 232, 1918.
[2] *M. N. R. A. S.*, **72**, 739, 1912, and **76**, 417, 1916.